DATASHEET - XV-102-D0-70TWR-10



Touch panel, 24 V DC, 7z, TFTcolor, ethernet, RS232, (PLC)



Part no. Catalog No. XV-102-D0-70TWR-10

142535

EL-Nummer (Norway)

4521120

Delivery program

Delivery program		
Product range		XV100 7"
Product range		XV-102
Function		HMI-PLC (SPS function, retrofittable)
Common features of the model series		Ethernet interface USB device USB Host Slot for SD card UL508, cUL approvals
Display - Type		Color display, TFT
Touch-technology		Resistive-Touch
Number of colours		64 k Colours
Resolution	Pixel	WVGA 800 x 480
Portrait format		yes
Screen diagonal	Inch	7
Model		Insulating enclosure and front plate
Operating system		Windows CE 5.0 (licence incl.)
PLC-licence		Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT
License certificates for onboard interfaces		Can be expanded as required, see Accessories -> License product certificates
built-in interfaces		1 x Ethernet 10/100 Mbps 1 x USB device 1 x RS232 1 x USB host 2.0
Front type		Standard front with standard membrane (fully enclosed)
Utilization		Flush mounting
Slots		for SD card: 1
Memory card automation		Optionally with SD card -> article no. 139807
Pluggable communication cards (optional)		no
Touch sensor		Glass with film
Heat dissipation	W	9.5

Technical data

Display

Display - Type		Color display, TFT
Screen diagonal	Inch	7
Resolution		WVGA 800 x 480
Visible screen area	mm	152 x 91
Number of colours		64 k Colours
Contrast ratio (Normally)		Normally 300:1
Brightness	cd/m ²	Normally 250
Back-lighting		LED dimmable via software
Service life of back-lighting	h	Normally 40000
Resistive touch protective screen		Touch sensor (glass with foil)

Operation

Technology	Resistive-Touch 4 wire
Touch sensor	Glass with film
System	

RISC CPU, 32 Bit, 400 MHz

03/15/2021

Processor

Internal memory			DRAM (OS, Program and data memory): 64 MByte NAND-Flash (can be used for data backup): approx. 128 MByte available
			NVRAM (retained data): approx. 32 KByte available
External memory			SD Memory Card Slot: SDA Specification 1.00
Cooling			Fanless CPU and system cooling, natural convection-based passive cooling
Back-up of real-time clock			
Battery (service life)			non-replaceable, CR2032 soldered in
Backup (time at zero voltage)			Normally 10 years
Engineering			
Visualisation software			GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3
PLC-Programming software			XSOFT-CODESYS-2 XSOFT-CODESYS-3
PLC-licence			Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT
Operating system			Windows CE 5.0 (licence incl.)
Interfaces, communication			
built-in interfaces			1 x Ethernet 10/100 Mbps 1 x USB device 1 x RS232 1 x USB host 2.0
USB Host			USB 2.0 (1.5 - 12 Mbit/s), not galvanically isolated
USB device			USB 2.0, not galvanically isolated
RS-232			RS-232, not galvanically isolated (SUB-D plug 9 pole, UNC)
Slots			for SD card: 1
Ethernet			100Base-TX/10Base-T
Power supply			
Nominal voltage			24 V DC SELV (safety extra low voltage)
permissible voltage			Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms
Voltage dips		ms	≤ 10 ms from rated voltage (24 V DC) 5 ms from undervoltage (19.2 V DC)
Power consumption	P _{max} .	W	10
Note on power consumption			Basic device USB Slave to USB Host: 2.5 Total: 9.5
Heat dissipation		W	9.5
Note on heat dissipation			Heat dissipation with power consumption for 24 V 7 W for basic device + 2.5 W for USB module
Protection against polarity reversal			yes
Type of fuse			Yes (fuse not accessible)
Potential isolation			no potential isolation
General			
Housing material			Plastic, gray
Front type			Standard front with standard membrane (fully enclosed)
Dimensions (W x H x D)		mm	210 x 135 x 38
flush mounted			Clearance: W x H x D \geq 30 mm (1.18") Inclination from vertical: $\pm 45^{\circ}$ (if using natural convection)
Weight		kg	0.6
Degree of protection (IEC/EN 60529, EN50178, VBG 4)			IP65 (at front), IP20 (at rear)
Approvals			
Approvals			cUL (UL508) EAC
Explosion protection (according to ATEX 94/9/EC)			II 3D Ex II T70°C IP5x: Zone 22, Category 3D
shipping classification			DNV GL AROUTE A

Applied standards and directives		
EMC		(in relation to CE) EN 61000-6-2 EN 61000-6-4 EN 61131-2
Product standards		EN 50178 EN 61131-2
Security		EN 60950 UL 60950
Mechanical shock resistance	g	according to IEC 60068-2-27
Vibration		according to IEC/EN 60068-2-6
RoHS		conform
Facility and a state of the sta		

Environmental conditions

Climatic environmental conditions			
Air pressure (operation)	hl	Pa	795 - 1080
Temperature			
Operating ambient temperature min.	°(С	0
Operating ambient temperature max.	°(С	+ 50
Relative humidity			
Relative humidity			10 - 95%, non-condensing

Supply voltage U_{Aux}

Rated operational voltage	U_{Aux}	V	24 V DC (-20/+25%)
Protection against polarity reversal			Yes
Potential isolation			No

Supply voltage U_{Pow}

Supply voltage	U_{Pow}	V	24 DC -20 % + 25 %
Input voltage ripple		%	≦ 5
Protection against polarity reversal			yes

Design verification as per IEC/EN 61439

Jesign verification as per IEC/EN 61439			
echnical data for design verification			
Rated operational current for specified heat dissipation	In	Α	0
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	9.5
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	0
Operating ambient temperature max.		°C	50
C/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
$10.2.3.3\mbox{Verification}$ of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Please enquire
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Meets the product standard's requirements.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.

10.9.4 Testing of enclosures made of insulating material	Is the panel builder's responsibility.
10.10 Temperature rise	The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating	Is the panel builder's responsibility.
10.12 Electromagnetic compatibility	Is the panel builder's responsibility.
10.13 Mechanical function	The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 7.0

PLOUGE CONTROL OF THE ACCOUNTS		
PLC's (EG000024) / Graphic panel (EC001412)		
Electric engineering, automation, process control engineering / Display and co		
Supply voltage AC 50 Hz	V	0-0
Supply voltage AC 60 Hz	V	0 - 0
Supply voltage DC	V	20.4 - 28.8
Voltage type of supply voltage		DC
Number of HW-interfaces industrial Ethernet		1
Number of interfaces PROFINET		0
Number of HW-interfaces RS-232		1
Number of HW-interfaces RS-422		0
Number of HW-interfaces RS-485		0
Number of HW-interfaces serial TTY		0
Number of HW-interfaces USB		2
Number of HW-interfaces parallel		0
Number of HW-interfaces Wireless		0
Number of HW-interfaces other		0
With SW interfaces		Yes
Supporting protocol for TCP/IP		Yes
Supporting protocol for PROFIBUS		No
Supporting protocol for CAN		No
Supporting protocol for INTERBUS		No
Supporting protocol for ASI		No
Supporting protocol for KNX		No
Supporting protocol for MODBUS		Yes
Supporting protocol for Data-Highway		No
Supporting protocol for DeviceNet		No
Supporting protocol for SUCONET		No
Supporting protocol for LON		No
Supporting protocol for PROFINET IO		No
Supporting protocol for PROFINET CBA		No
Supporting protocol for SERCOS		No
Supporting protocol for Foundation Fieldbus		No
Supporting protocol for EtherNet/IP		Yes
Supporting protocol for AS-Interface Safety at Work		No
Supporting protocol for DeviceNet Safety		No
Supporting protocol for INTERBUS-Safety		No
Supporting protocol for PROFIsafe		No
Supporting protocol for SafetyBUS p		No
Supporting protocol for other bus systems		Yes
Radio standard Bluetooth		No
Radio standard WLAN 802.11		No
Radio standard GPRS		No
Radio standard GSM		No
Radio standard UMTS		No
IO link master		No
Type of display		TFT
With colour display		Yes

Number of grey-scales/blue-scales of display Inches 7 Screen diagonal inch 7 Number of pixels, horizontal 80 80 Number of pixels, horizontal 80 80 Number of pixels, horizontal 80 80 Number of pixels, vertical 80 64 Sextual project memory/user memory 80 70 With alpha numeric keyboard 70 70 Number of function buttons, programmable 0 0 Number of function buttons, programmable 1 0 Number of spatial value input buttons with LED 8 8esistive touch Number of puttons with LED (state and confirmation) 70 8esistive touch Number of puttons use gresentation (output) possible 70 8es Number of password levels 9 70 8es Number of password levels 9 90 90 Number of password levels 9 10 10 Number of password levels 9 10 10 Object to In IPL front side 9			
Screen diagonal inh 7 Number of pixels, horizontal 1 800 Number of pixels, vartical 480 480 Unumber of pixels, vartical 489 480 Useful project memory/user memory 489 64 With a plan anumeric keyboard 7 7 With a plan anumeric keyboard 7 8 With project memory with LED 9 9 Number of buttons with LED 1 8 With message system funct buttons 1 8 With message system funct. buffer and confirmation 7 8 With message system funct. buffer and confirmation 7 8 Process value representation (output) possible 7 8 Process adefault value (input) possible 7 8 Process value representation foutput) possible 7 9 With printer output 9 10 Value of password levels 10 9 Value of protection (IP), front side 9 9 Degree of protection (IPMA), front side 10	Number of colours of the display		65.536
Number of pixels, berizontal 800 Number of pixels, vertical 480 Number of pixels, vertical kByte 64 Virth numeric keyboard Ves Wirth alpha numeric keyboard Ves Number of function buttons, programmable 0 Number of buttons with LED 0 Number of system buttons 1 Number of system buttons 1 Number of system buttons 2 Resistive touch Number of system buttons Yes Number of system buttons Yes Process value representation (output) possible Yes Process value representation (output) possible Yes Process value representation (output) possible Yes Process default value (input) possible Yes Process value representation (output) possible Yes Vinith printer output Yes Process value representation (output) possible Yes Vinith printer output Yes Process value representation (output) possible Yes Vinith printer output Yes Process value representation (Vinity printer output) Yes Vinith printe	Number of grey-scales/blue-scales of display		0
Number of pixels, vertical kByte 64 Useful project memory/user memory kByte 64 With numeric keyboard Yes Wumber of function buttons, programmable 0 Number of buttons with LED 0 Wumber of buttons with LED 1 Wouther of system buttons 1 Foundation of the technology Resistive touch With message system (incl. buffer and confirmation) Yes Process value representation (output) possible Yes Process default value (input) possible Yes Vith recipes 2 20 With printer output Yes Vumber of password levels 2 20 With printer output Yes Vumber of poline languages 1 10 Additional software components, loadable Yes Degree of protection (IP), front side Yes Avail mounting officer to mounting Ye	Screen diagonal	inch	7
Useful project memory/User memory kByte 64 With numeric keyboard Yes With alpha numeric keyboard Yes Wumber of function buttons, programmable 0 Wumber of buttons with LED 0 Wumber of system buttons 1 Resistive touch 1 With message indication Yes With message system (incl. buffer and confirmation) Yes Process value representation (output) possible Yes Process default value (input) possible Yes Process default value (input) possible Yes With recipes Yes With recipes Yes With printer output Yes Wumber of password levels 100 With printer output Yes Under of online languages 100 Additional software components, loadable Yes Degree of protection (NEMA), front side Yes Degree of protection (NEMA), front side Yes Value of the mounting direct mounting Yes Wall mounting/direct mounting Yes <	Number of pixels, horizontal		800
With alpha numeric keyboard With alpha numeric keyboard Number of function buttons, programmable Number of function buttons with LED Number of system buttons Number of system (incl. buffer and confirmation) Number of system (incl. buffer and confirmation) Number of spassword (incl. buffer and confirmation) Number of password levels Number of password levels Number of password levels Number of online languages Number of protection (IP), front side Number of protection (IP), front side Number of protection (IEMA), front side Number of protection (IEMA), front side Number of safety functions Number of safety f	Number of pixels, vertical		480
With alpha numeric keyboard Number of function buttons, programmable Number of buttons with LED Number of system buttons Number of presentation (butput) possible Number of password levels Number of polinie languages Number of online languages Number of password levels	Useful project memory/user memory	kByte	64
Number of function buttons, programmable Number of buttons with LED Number of system buttons Number of presentation (butput) possible Number of password levels Number of polinie languages Number of onlinie languages Number of password levels Number of passwor	With numeric keyboard		Yes
Number of buttons with LED Number of system buttons Fouch technology Noth message indication Noth message system (incl. buffer and confirmation) Process value representation (output) possible Process value (input) possible Process default value (input) possible Process default value (input) possible Noth printer output Noth printer o	With alpha numeric keyboard		Yes
Number of system buttons fouch technology With message indication With message system (incl. buffer and confirmation) Process value representation (output) possible Process default value (input) possibl	Number of function buttons, programmable		0
Resistive touch With message indication With message system (incl. buffer and confirmation) Process value representation (output) possible Process default value (input) possi	Number of buttons with LED		0
With message system (incl. buffer and confirmation) Process value representation (output) possible Process value representation (output) possible Process default value (input) possible Number of password levels No No No No No Nother front Mith of the front mm 135	Number of system buttons		1
With message system (incl. buffer and confirmation) Process value representation (output) possible Process default value (input) possib	Touch technology		Resistive touch
Process value representation (output) possible Process default value (input) possible With recipes With recipes With recipes With recipes With printer output Wes With printer output Wes Wes Degree of protection (IP), front side Degree of protection (IP), front side Degree of protection (NEMA), front side Degree of protection	With message indication		Yes
Process default value (input) possible With recipes With recipes With recipes With recipes With printer output Wes With printer output Wes With printer output Wes With printer output Wes Wes Wes Wes Wes Wes Wes We	With message system (incl. buffer and confirmation)		Yes
With recipes Number of password levels Number of password levels Number of password levels Number of online languages Number of online languages Additional software components, loadable Degree of protection (IP), front side Degree of protection (NEMA), front side Operation temperature Operation temperature Number of online languages Number of online languages Operation software components, loadable Ves Ves Ves Operation (NEMA), front side Number of online languages Ves Ves Ves Operation (IP), front side Ves Ves Operation (NEMA), front side Ves Ves Ves Operation (NEMA), front side Ves Ves Ves Operation (NEMA), front side Ves Ves Ves Ves Ves Operation (NEMA), front side Ves Ves Ves Ves Ves Ves Operation (NEMA), front side Ves Ves Ves Ves Operation (NEMA), front side Ves Ves Ves Ves Ves Ves Ves Operation (NEMA), front side Ves Ves Ves Ves Ves Ves Ves Ves Ves Ve	Process value representation (output) possible		Yes
Number of password levels With printer output Yes Number of online languages Additional software components, loadable Degree of protection (IP), front side Degree of protection (NEMA), front side Degree of protection (NEMA), front side Operation temperature Rail mounting possible Wall mounting possible No No With of the front No With of the front Mith of the front No 135	Process default value (input) possible		Yes
With printer output Number of online languages Additional software components, loadable Degree of protection (IP), front side Degree of protection (NEMA), front side Operation temperature Comparison temperature No No With of the front Mith of t	With recipes		Yes
Number of online languages Additional software components, loadable Degree of protection (IP), front side Degree of protection (NEMA), front side Degree of protection (NEMA), front side Oberation temperature Rail mounting possible No Nall mounting/direct mounting Suitable for safety functions No No Nidth of the front Midth of the fron	Number of password levels		200
Additional software components, loadable Degree of protection (IP), front side Degree of protection (NEMA), front side Degree of protection (NEMA), front side Components Degree of protection (NEMA), front side AX No No Suitable for safety functions No Width of the front mm 210 Height of the front mm 135	With printer output		Yes
Degree of protection (IP), front side Degree of protection (NEMA), front side Degree of protection (NEMA), front side Coperation temperature Coperation temperature Coperation temperature Comparison temperature Coperation tempera	Number of online languages		100
Degree of protection (NEMA), front side 2 4X Degration temperature 3 C 0 - 50 No Rail mounting possible No Wall mounting/direct mounting Suitable for safety functions No Width of the front mm 210 Height of the front mm 135	Additional software components, loadable		Yes
Operation temperature C 0 - 50 Rail mounting possible No Nall mounting/direct mounting Suitable for safety functions No Not Not Not Not Not Not Not	Degree of protection (IP), front side		IP65
Rail mounting possible No No No Suitable for safety functions No No No No No No No No No N	Degree of protection (NEMA), front side		4X
Nall mounting/direct mounting No Suitable for safety functions No Width of the front mm 210 Height of the front mm 135	Operation temperature	°C	0 - 50
Suitable for safety functions No Width of the front mm 210 Height of the front mm 135	Rail mounting possible		No
Width of the front mm 210 Height of the front mm 135	Wall mounting/direct mounting		No
Height of the front mm 135	Suitable for safety functions		No
	Width of the front	mm	210
Built-in depth mm 33	Height of the front	mm	135
	Built-in depth	mm	33

Approvals

- PP-0-1-0-0	
Product Standards	UL 60950-01; CSA-C22.2 No. 60950-1; IEC/EN 61131-2; CE marking
UL File No.	E208621
UL Category Control No.	NWGQ2
CSA File No.	UL report applies to both US and Canada
CSA Class No.	NWGQ8
North America Certification	UL recognized, certified by UL for use in Canada
Conditions of Acceptability	The investigated Pollution Degree is: 2 The following end-product enclosures are required: Fire The unit must be supplied via a SELV source. The provided Ethernet Connection is only allowed to connect to inhouse networks.
Specially designed for North America	No
Current Limiting Circuit-Breaker	No
Degree of Protection	IEC: IP65, UL/CSA Type: -

Dimensions

Dimensions

Additional product information (links)

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f1=1454&f2=1242&f3=1773;Download Software GALILEO	http://applications.eaton.eu/sdlc?LX=11&
Product overview (WEB)	http://www.eaton.eu/xv